

RESOLUTION NO. R-01 -2017

**A RESOLUTION OF THE CITY COUNCIL OF EAGLE MOUNTAIN CITY,
UTAH, ADOPTING THE SEWER SYSTEM MANAGEMENT PLAN**

WHEREAS, Section R317-801 of the Utah Administrative Code requires sewer system permittees to have and implement a sewer system management plan;


NOW THEREFORE, BE IT RESOLVED by the Eagle Mountain City Council that:

1. The Eagle Mountain City Sewer System Management Plan, attached to this Resolution as Exhibit A, be adopted to meet the requirements of the Utah Administrative Code, Section R317-801.

2. This Resolution shall be effective on the date it is adopted.


ADOPTED by the City Council of Eagle Mountain City this 17th day of January, 2017.

EAGLE MOUNTAIN CITY, UTAH



Chris Pengra, Mayor

ATTEST:



Fionnuala B. Kofoed, City Recorder



CERTIFICATION

The above Resolution was adopted by the City Council of Eagle Mountain City on this 17th day of January, 2017.

Those voting aye:

- Adam Bradley
- Colby Curtis
- Stephanie Gricius
- Benjamin Reaves
- Tom Westmoreland

Those voting nay:

- Adam Bradley
- Colby Curtis
- Stephanie Gricius
- Benjamin Reaves
- Tom Westmoreland

excused



Fionnuala B. Kofoed, MMC
City Recorder

Exhibit A

EAGLE MOUNTAIN CITY

Sewer System Management Plan

Prepared by:

JWO Engineering

1307 North Locust Lane
Provo, Utah 84604
Contact: Jared Oldroyd, P.E.
801-828-7805

June 2016

EAGLE MOUNTAIN CITY

Sewer System Management Plan

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June 2016

TABLE OF CONTENTS

Section 1	Sewer System Management Plan General Information
Section 2	Operations and Maintenance Program
Section 3	Sewer Design and Construction Standards
Section 4	Sanitary Sewer Overflow Response Plan
Section 5	Grease, Oil and Sand Interceptor Management Plan
Section 6	System Evaluation and Capacity Assurance Plan
Section 7	SSMP Monitoring and Measurement Plan
Section 8	Sewer System Mapping Program

Section 1 Sewer System Management Plan General Information

Introduction

The City of Eagle Mountain (Eagle Mountain) was established in 1996 as a political subdivision of the State of Utah and provides sewage collection and treatment to its residents. In order to comply with the requirements of Utah Code, Eagle Mountain has contracted with JWO Engineering, PLLC to prepare this Sewer System Management Plan (SSMP). This plan meets the requirements of R317 section 801 of the state code. This manual has been established to document the plan. The objective of the plan is to manage, operate, and maintain all parts of the sewer collection system so that sanitary sewer overflows (SSOs) will be prevented or reduced. The plan also strives to minimize impacts of any SSOs that occur. Eagle Mountain's wastewater department staff recognizes the responsibility it has to operate the sewer system in an environmentally and fiscally responsible manner. This manual covers aspects of the collection system program necessary to provide such an operation. This manual may refer to other programs or ordinances and by reference may incorporate these programs into this manual.

Purpose of Sewer Management Plan

This program is intended to be a guidance document and is not intended to be part of a regulatory requirement. As such, failure to strictly comply with the documentation requirements is, in and of itself, not a failure of the program's effectiveness. Documentation failures are intended to be identified during system self-audits and will be addressed as training opportunities. Significant system failures will be followed up with corrective action plans. This corrective action process will be implemented by key individuals involved with collection system operations. It is anticipated that not all employees will receive program training. Finally, although not a part of this SSMP program, Eagle Mountain is an active participant in the Blue Stakes of Utah Utility Notification system. This system, regulated under title 54-8A of the Utah State Code, stipulates utility notification of all underground operators when excavation takes place. The intent of this regulation is to minimize damage to underground facilities. Eagle Mountain has a responsibility to mark its underground sewer facilities when notified that an excavation is going to take place. Participation in the Blue Stakes program further enhances the protection of the collection system and reduces SSOs.

Definitions

The following definitions are to be used in conjunction with those found in Utah Administrative Code R317. The following terms have the meaning as set forth:

"BMP" -- "best management practice."

"CCTV" -- "closed circuit television."

"CIP" -- a "Capital Improvement Plan."

"DWQ" -- "the Utah Division of Water Quality."

"FOG" -- "fats, oils and grease."

"I/I" -- "infiltration and inflow."

"Permittee" -- the federal or state agency, municipality, county, district, and other political subdivision of the state including but not limited to Eagle Mountain, that owns or operates a sewer collection system or who is in direct responsible charge for operation and maintenance of the sewer collection system. When two separate federal or state agency, municipality, county, district, and other political subdivision of the state are interconnected, each shall be considered a separate Permittee.

"SECAP" -- "System Evaluation and Capacity Assurance Plan."

"Sewer Collection System" -- a system for the collection and conveyance of wastewaters or sewage from domestic, industrial and commercial sources. The Sewer Collection System does not include sewer laterals under the ownership and control of an owner of real property, private sewer systems owned and operated by an owner of real property, and systems that collect and convey stormwater exclusively.

"SORP" -- "Sewer Overflow Response Plan."

"SSMP" -- "Sewer System Management Plan."

"SSO" -- "sanitary sewer overflow," -- the escape of wastewater or pollutants from, or beyond the intended or designed containment of a sewer collection system.

"Class 1 SSO" (Significant SSO) means a SSO or backup that is not caused by a private lateral obstruction or problem that: (a) affects more than five private structures; (b) affects one or more public, commercial or industrial structure(s); (c) may result in a public health risk to the general public; (d) has a spill volume that exceeds 5,000 gallons, excluding those in single private structures; or (e) discharges to Waters of the State of Utah.

"Class 2 SSO" (Non Significant SSO) means a SSO or backup that is not caused by a private lateral obstruction or problem that does not meet the Class 1 SSO criteria.

"USMP" -- the "Utah Sewer Management Program."

General SSO Requirements

The following general requirements for SSO's are stipulated in R317-801 and are included here as general information:

- (1) The permittee shall take all feasible steps to eliminate SSOs to include: (a) Properly managing, operating, and maintaining all parts of the sewer collection system; (b) training system operators; (c) allocating adequate resources for the operation, maintenance, and repair of its sewer collection system, by establishing a proper rate structure, accounting mechanisms, and auditing procedures to ensure an adequate measure of revenues and expenditures in accordance with generally acceptable accounting practices; and, (d) providing adequate capacity to convey base flows and peak flows, including flows related to normal wet weather events. Capacity shall meet or exceed the design criteria of R317-3.
- (2) SSOs shall be reported in accordance with the requirements below.

(3) When an SSO occurs, the permittee shall take all feasible steps to: (a) control, contain, or limit the volume of untreated or partially treated wastewater discharged; (b) terminate the discharge; (c) recover as much of the wastewater discharged as possible for proper disposal, including any wash-down water; and, (d) mitigate the impacts of the SSO.

SSO Reporting Requirements

R317-801 stipulates when and how SSO's are reported. Following are those requirements as of 05/01/2016.

SSO REPORTING. SSOs shall be reported as follows:

- (1) A Class 1 SSO shall be reported orally within 24 hrs and with a written report submitted to the DWQ within five calendar days. Class 1 SSOs shall be included in the annual USMP report.
- (2) Class 2 SSOs shall be reported on an annual basis in the USMP annual report.

ANNUAL REPORT. A permittee shall submit to DWQ a USMP annual operating report covering information for the previous calendar year by April 15 of the following year.

Sewer Use Ordinance

Eagle Mountain has sewer use ordinances, rules, or regulations that have been adopted by the governing body. These regulations contain the following items as stipulated by Utah State Code R317-801: (a) Prohibition on unauthorized discharges, (b) Requirement that sewers be constructed and maintained in accordance with R317-3, (c) Ensures access or easements for maintenance, inspections and repairs, (d) Has the ability to limit debris which obstruct or inhibit the flow in sewers such as foreign objects or grease and oil, (e) Requires compliance with pretreatment program, (f) Allows for the inspection of industrial users, and (g) Provides for enforcement of for ordinance or rules violations. These ordinances can be found in City Code Chapter 13.20.

General Information

This Sewer System Management Plan was adopted by Eagle Mountain city council on _____.

Description of Roles and Responsibilities

The following positions have the described responsibility for implementation and management of the specific measures as described in the SSMP. Contact information for key individuals is provided in Figure 1-1: Organization Chart.

Public Utilities Manager

This individual is responsible for overall management of the sanitary sewer collection system. Responsibilities include working with governance to assure sufficient budget is allocated to implement the SSMP, maintenance of the SSMP documentation, development of a capital improvement program and general supervision of all staff.

Wastewater Foreman

This individual is responsible for daily implementation of the SSMP. This includes maintenance activities, compliance with SORP requirements, and monitoring and measurement reporting requirements.

Pretreatment Coordinator

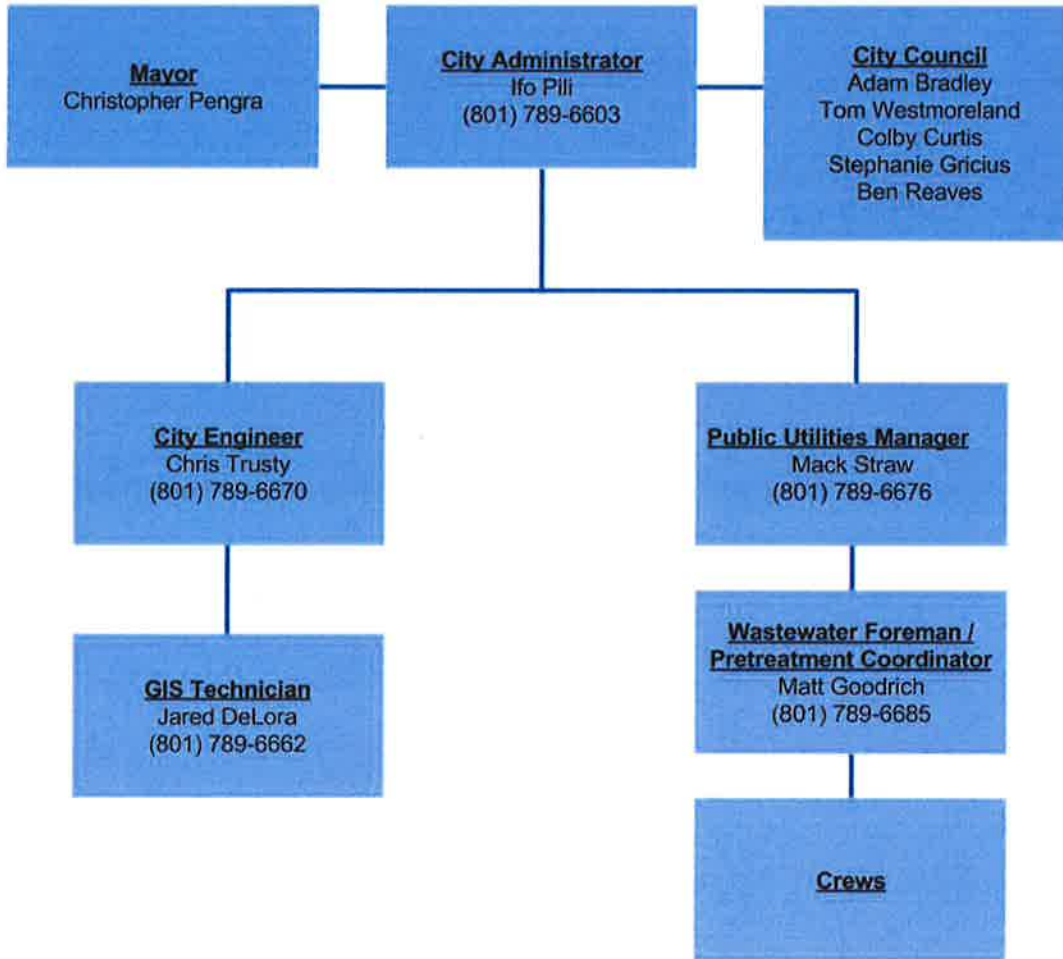
This individual is responsible for implementation of the pretreatment program including the fats, oils, and grease program.

City Engineer

This individual is responsible for the development and maintenance of collection system design standards, maintenance of collection system mapping and maintenance of the SECAP program.

Organization Chart

Figure 1-1: Organization Chart



The chart details the personnel associated with the SSMP.

Section 2 Operations and Maintenance Program

TSSD Service

Eagle Mountain has contracted with the Timpanogos Special Service District (TSSD) to service its sewer lines. The following items are managed by TSSD:

- a) System Cleaning
- b) System CCTV Inspection
- c) Pump Station/Pressure Lines Inspection
- d) Manhole Inspection
- e) Defect Reporting
- f) Damage Assessment

Annually, TSSD provides a report to the Wastewater Foreman. These reports are reviewed, maintained, and stored in a central location by the Foreman.

System Mapping

An up to date map is essential for effective system operations. Eagle Mountain has a GIS department that is assigned to collect system information, prepare system maps and maintain geographic information for the sanitary sewer system and other City owned infrastructure. Mapping is maintained in ArcGIS. The GIS database for the sewer lines is not complete. Data for main trunklines has been collected and the GIS department anticipates completing data collection for the sewer collectors by fall of 2016.

Should any employee identify an error in the mapping, they should document the error on a defect report and submit it to the GIS department.



Timpanogos Special Service District
 6400 N 5050 W
 American Fork, UT 84003
 (801) 756-5231

Inspection Report / Inspection: 1

Date: 3/31/2014	Job #:	Weather : cloudy	Operator : Morgan	Section # : 410	Section name :
Present :	Vehicle : TIMP 3	Camera :	Preset : 6	Cleaned : yes	Rate :

Street 1 : Point Lookout Rd	Map # 1 :	From MH : 7340	To MH : 7296
City : EAGLE MOUNTAIN	VCR # :	Section length : 80.00 ft	Joint length : 12.00 ft
Insp. method : Televise	Media # :		

Reason of inspection : gen. condition control	Pipe shape : round
Section type : waste	Pipe size : 8 inch
Area : Hidden Canyon	Pipe material : P.V.C.
	Lining : NA

Remarks : 3:28 PM end 3:48 PM

1:200	Position	Observation	Photo
	7340	0.00 inspection begins at downstream manhole	
		29.40	service connection with grease, at 02 o'clock
		80.00	inspection begins at upstream manhole
	7296		7340_7296_033114_153250_A .JPG



Inspection Pictures / Inspection: 1

City : EAGLE MOUNTAIN	Street : Point Lookout Rd	Date : 3/31/2014	Section # : 410	Section name :
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Photo: 410_2A
29.4FT, service connection with grease, at 02 o'clock



Timpanogos Special Service District
 6400 N 5050 W
 American Fork, UT 84003
 (801) 756-5231

Inspection Report / Inspection: 1

Date: 5/28/2014	Job # :	Weather : sunny, dry	Operator : Mike	Section # : 171	Section name :
Present :	Vehicle : TIMP 3	Camera : P & T	Preset : 6	Cleaned : no	Rate :

Street 1 : 4400 E	Map # 1 :	From MH : 1316 E
City : EAGLE MOUNTAIN	VCR # :	To MH : 1515 E
Insp. method : Televise	Media # :	Section length : 1,000.00 ft
		Joint length : 12.00 ft

Reason of inspection : gen. condition control	Pipe shape : round
Section type : waste	Pipe size : 8 inch
Area :	Pipe material : P.V.C.
	Lining : N/A

Remarks :

1:1518	Position	Observation	Photo
	1316 E	0.00 inspection begins at upstream manhole Flows East 8:15 AM	
	14.90	service connection, at 02 o'clock	
	53.00	service connection, at 10 o'clock	
	86.10	service connection, at 02 o'clock	
	136.70	service connection, at 10 o'clock	
	167.00	service connection, at 02 o'clock	
	218.50	service connection, at 10 o'clock	
	247.30	service connection, at 02 o'clock	
	300.70	service connection, at 10 o'clock	
	311.10	1373 E MH	
	327.10	service connection, at 02 o'clock	
	383.70	service connection, at 10 o'clock	
	405.80	service connection, at 02 o'clock	
	466.50	service connection, at 10 o'clock	
	485.50	service connection, at 02 o'clock	
	549.80	service connection, at 10 o'clock	
	564.20	service connection, at 02 o'clock	
	623.70	1435 E MH	
	631.00	service connection, at 10 o'clock	



Timpanogos Special Service District
 6400 N 5050 W
 City : American Fork, UT 84003
 Tel: (801) 756-5231
 Fax:
 Email:

Inspection Report / Inspection: 1

Date : 5/28/2014	Job number :	Weather : sunny, dry	Operator : Mike	Counter : 171	Section name :
Present :	Vehicle : TIMP 3	Camera : P & T	Preset :	Cleaned : no	Rate :

1:1518	Position	Observation	Photo
	644.40	service connection, at 02 o'clock	
	713.00	service connection, at 10 o'clock	
	723.30	service connection, at 02 o'clock	
	797.00	service connection, at 10 o'clock	
	802.50	service connection, at 02 o'clock	
	878.80	service connection, at 10 o'clock	
	883.30	service connection, at 02 o'clock	
	957.90	service connection, at 10 o'clock	
	959.60	service connection, at 02 o'clock	
	1,000.00	inspection ends at downstream manhole 9 :35 AM	



CITY OF E.M.
DAILY SEWER LINE CLEANING REPORT
JET-VAC FLUSHER TRUCK

Date: 1-28-14

Operator SCOTT/ALAN

Lines cleaned from 2079 E. JORDAN WAY to 2131 E. JORDAN WAY.

Line Backed Up Yes No Vacuum Used Yes No

Washed Down Shelf Yes No

Line Jetted 1 times Easement Yes No

Estimated Line Distance 300' Routine Yearly

Line Size 10" Line Material PVC M/H Material CONCR

M/H Depth-Surface to Top of Pipe _____ Direction of Flow WEST.

Cleaning Time: Started 9:56 A.M. / P.M. Finished 10:10 A.M. / P.M.

Debris found in M/H
circle

Rocks Rags Grease Sticks Rebar Grit Other _____

MANHOLE AND LINE
INSPECTION AND REPAIR

Manhole or Line Needs Attention _____ Yes No

Surface _____ Shelf or Trough _____ M/H Walls _____ T.V. _____

Remarks: WATERED UP AT: 4633 N. SPRING MEADOW WAY.

10:12 TO 10:32.

Section 3 Sewer Design and Construction Standards

Included by reference in this section are the sanitary sewer design standards for Eagle Mountain. These design standards are intended to be used in conjunction with Utah Administrative Code R317-3 and the APWA 2012 Standards and Specifications. Where a conflict exists between these standards, the Administrative Code shall prevail. Eagle Mountain City Sewer Design and Construction Standards are found in Eagle Mountain Municipal Code Chapter 13.20. Ordinances pertaining to the inspection of sewer connections, the excavation and backfill for pipelines and ground water, and the standards for building sewer connections are found in Section 13.20.340, Section 13.20.370, and Section 13.20.400 respectively. These sections are included on the following pages.

13.20.340 Inspection of sewer connections.

Inspection of the sewer connection, or connection to any sewage disposal unit, shall be inspected by the city and the city inspector shall be notified at least 48 hours in advance by the plumber that the connection is complete and ready for inspection. The entire length of the sewer shall be fully exposed. No backfilling shall be done until the inspection is made and work accepted. If any portion of the work is not done in accordance with this title and the instructions of the plumbing inspector, it shall be rectified promptly. [Amended during 2008 codification; Ord. O-01-2004 § 1 (Exh. A § 4.35); Ord. 002 § 1 (Exh. A § 4.35)].

13.20.370 Excavation and backfill for pipelines and ground water – Gravel foundation for pipe.

A. Ground Water. Trenches shall be kept free from water during excavation, fine grading, pipe laying, jointing and embedment operations. Where the trench bottom is mucky or otherwise unstable due to ground water, and in cases where the static ground water elevation is above the bottom of any trench or bell hole excavation, such ground water shall be lowered to the extent necessary to keep the trench free from water and the trench bottom stable when the work within the trench is in progress. Surface water shall be prevented from entering trenches.

B. Excavation for Pipelines. Excavation shall be made to the lines and grades shown on the plans and to include clearance for forms, bracing and supports. All suitable excavated material shall be used in backfilling, preparing subgrades or filling depressions as directed. Unsuitable material shall be disposed of in an approved manner. Typical trench cross-sections shall be shown on the plans. Pipeline trenches shall not be excavated further in advance of pipe laying than that distance of pipe which can be placed in one day. No trench containing pipe shall be left open for more than two laying lengths of pipe or more than 40 feet, whichever is less, during times when workmen are not present. An unattended open trench shall be provided with an exit ramp so that animals or children will not be trapped in the trench.

If the natural foundation material is distributed or loosened during excavation, it shall be compacted or otherwise prepared as directed by the engineer. No extra compensations shall be allowed the contractor for such work.

When unsuitable material or rocks larger than 12 inches are encountered, additional excavation shall be made to at least six inches below the grade line. Suitable material shall be emplaced and compacted as required by the Eagle Mountain city engineer.

C. Gravel Foundation for Pipe. In areas where the trench foundation does not afford a sufficiently solid foundation to support the pipe at the correct alignment and grade, the foundation shall be excavated and replaced with crushed rock or gravel of one-inch maximum size. The gravel shall be deposited over the entire trench width in six-inch maximum layers. Each layer shall be compacted by an approved method. In addition, the material shall be brought to grade to produce a uniform and continuous support for the pipe.

D. Backfilling. Pipe shall be backfilled per the manufacturer's recommendations so as to protect the pipe from damage. Unless otherwise recommended, select backfill material containing no rocks larger than two inches shall be placed around pipe, to a depth of at least six inches over the top of the pipe. After being protected by select backfill material, pipelines may be backfilled with the suitable material by approved means which will not damage or displace the pipe.

Trenches shall be filled to or above the existing grade, or to the grade shown on the plans. Backfill shall be compacted in areas such as driveways, road and highway crossings, sidewalks, and other areas where settlement of the material cannot be tolerated. Compaction shall be achieved by mechanical tamping of eight-inch horizontal lifts. Water consolidation shall not be substituted for mechanical compaction unless the engineer determines that the pipe may be damaged or displaced by mechanical compacting. In that case, water compacting may be used in the lower half of the backfill. Compaction of backfill, when required, shall be to at least 95 percent of maximum density per ASTM D698 or AASHTO T99. In areas where compaction is not required, the trench backfill shall be consolidated by flooding, jetting, wheel rolling, or other approved means to lessen subsequent backfill settlement.

The contractor shall be responsible for settlement of trenches, and for damage to roads and highways, structures, pole lines, etc., caused by settlement. [Ord. O-01-2004 § 1 (Exh. A § 4.38); Ord. 002 § 1 (Exh. A § 4.38)].

13.20.400, Standards and specifications for building sewer connections.

A building sewer or sewer connection shall be deemed that part of the piping extending from the building drain to its connection with the main sewer.

It shall be unlawful for any person to construct or attach any private drain with the public sewers of the city, except under full compliance with the provisions of this chapter.

All sewer connections or building sewers shall be not less than four inches nor more than six inches in diameter.

A. Polyvinyl Chloride Sewer Pipe. PVC sewer pipe and fittings shall be of type and source approved by the Utah Plumbing Code. Approved pipe presently includes ASTM 3033 (SDR 41) and ASTM 3034 (SDR 34). Pipe shall be schedule 40. Joints shall be bell and spigot, ASTM 3040 (SDR 34), four inches for service connections.

PVC sewer pipe and fitting shall not be used in any reach of pipe that will carry acid or corrosive wastes, unless such pipe is of a type approved by the Utah Plumbing Code for such application.

B. Concrete Sewer Pipe. Due to the tendency of concrete to be attacked by chemical combinations produced by wastewater, concrete sewer pipe will normally not be approved for use in sewers where the pipe is installed to minimum grade.

If concrete sewer pipe is approved for use, it shall conform to ASTM C14, Class 3, for diameters 18 inches or less. Reinforced concrete sewer pipe and fittings shall conform to ASTM C76, Class 2, for diameters 21 inches or larger, as well as for smaller diameters where required by the engineer. Joints shall be of the bell and spigot rubber gasket design conforming to ASTM C443.

C. Other Pipe Materials. Pipe and fitting constructed of materials other than those specified above may be used if approved by the engineer and the Utah Plumbing Code. Any such pipe shall comply with the applicable ASTM designation.

D. Manholes. Precast concrete manhole sections shall conform to ASTM C478 for eccentric cone and to ASTM C76 for cylindrical sections. Concrete bases for manholes shall be cast in place or precast conforming to Section 9.050 of the Eagle Mountain City Construction Standards and Specifications. Other manhole materials, such as preformed fiberglass, may be approved by the engineer. Concrete stabilization rings shall be Class A concrete.

Manholes shall conform to all requirements of the state of Utah and the city.

E. Service Connections. Service lines shall be constructed of substantial materials approved by the Utah Plumbing Code for the particular application. Minimum pipe size shall be four-inch diameter. [Ord. O-01-2004 § 1 (Exh. A § 4.41); Ord. 002 § 1 (Exh. A § 4.41)].

Section 4 Sewer Overflow Response Plan

Whenever sanitary sewage leaves the confines of the piping system, immediate action is necessary to prevent environmental, public health or financial damage from occurring. In addition, quick action is normally needed to mitigate damage which may have already occurred. For the purpose of this section, the following are part of the emergency action plan.

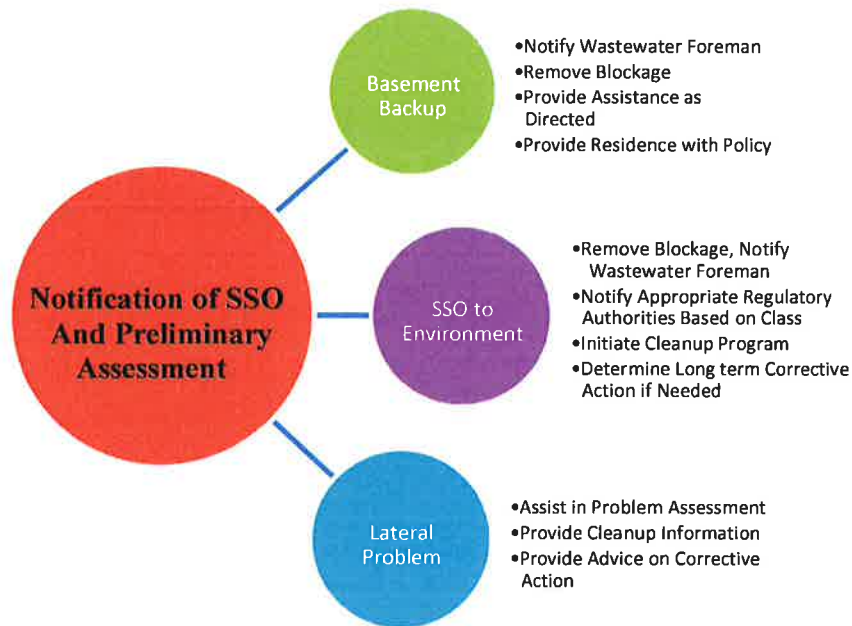
1. Basement backups
2. Sanitary sewer overflows
3. Sanitary sewer breaks which remain in the trench
4. Sewer lateral backups

All of the above conditions are likely to cause some damage. Each should be treated as an emergency, and corrective actions taken in accordance with Eagle Mountain directions. Items 1 & 2 above should be reported immediately based on whether they constitute a Class 1 or Class 2 SSO. As stated in the definition section of the SSMP Introduction, a Class 1 SSO is an overflow which affects more than five private structures; affects a public, commercial or industrial structure; results in a significant public health risk; has a spill volume more than 5,000 gallons; or has reached Waters of the State. All other overflows are Class 2 SSOs. All Class 1 SSOs should be reported immediately. Class 2 SSOs should be documented and reported in the annual SSMP report and included in the Municipal Wastewater Planning Program submitted to the State. Item 3 may be reported to the local health department if, in the opinion of the responsible staff member there is potential for a public health issue. An example of where a public health issue may be present is when an excavator breaks both a sewer and a water line in the same trench. In such cases, the local health department representatives should be contacted and the situation explained. If the health representative requests further action on the part of the City, staff should comply if possible. If, in the opinion of the responsible staff member, the health department request is unreasonable, the Foreman should be immediately notified. Care should always be taken to err on the side of protecting public health over financial considerations. When a basement backup occurs, the staff member responding should follow standard City protocol for basement backups. Lateral backups, while the responsibility of the property owner, should also be treated as serious problems. City staff may provide policy information to the property owner in such cases and advise the owner to take corrective actions, but the property owner is ultimately the decision maker about what actions should be taken.

Response Activities

There are specific steps that should be followed once a notification is received that an overflow may be occurring. Figure 4-1 outlines actions that could be taken when the Eagle Mountain receives notice that a possible overflow has occurred or is occurring.

Figure 4-1: SSO Notification Procedure



When a Class 1 SSO occurs specific notification requirements are needed. In such cases the following Notification procedure should be followed and documented. Failure to comply with notification requirements is a violation of R317-801.

Agency Notification Requirements

Both the State of Utah Division of Water Quality and the local health department should be immediately notified when an overflow is occurring. Others that may require notification include local water suppliers, affected property owners and notification may be required to Utah Division of Emergency Response and Remediation if hazardous materials are involved. The initial notification must be given within 24 hours. However, attempts should be made to notify them as soon as possible so they can observe the problem and the extent of the issue while the problem is happening. A notification form is provided to document notification activities. After an SSO has taken place and the cleanup has been done, a written report of the event should be

submitted to the State DEQ within five days (unless waived). This report should be specific and should be inclusive of all work completed. If possible the report should also include a description of follow-up actions such as modeling or problem corrections that has or will take place.

Public Notification

When an SSO occurs and the extent of the overflow is significant and the damage cannot be contained the public may be notified through proper communication channels. Normally the local health department will coordinate such notification. Should Eagle Mountain need to provide notification it could include press releases to the local news agencies, publication in an area paper, and leaflets delivered to home owners or citizens in the area of the SSO. Notification should be sufficient to insure that the public health is protected. When and if Federal laws are passed concerning notification requirements, these legal requirements are incorporated by reference in this document. In general, notification requirement increase as the extent of the overflow increases.

Overflow Cleanup

When an overflow happens, care should be taken to clean up the environment to the extent feasible based on technology, good science and financial capabilities. Cleanup could include removal of contaminated water and soil saturated with wastewater and toilet paper, disinfection of standing water with environmentally adequate chemicals or partitioning of the affected area from the public until natural soil microbes reduce the hazard. Cleanup is usually specific to the affected area and may differ from season to season. As such, this guide does not include specific details about cleanup. As a reference guide for cleanup procedures, the Eagle Mountain Spill Plan is included on the next page. The responsible staff member in conjunction with the State DEQ, the local health department and the owner of real property should direct activities in such a manner that they are all satisfied with the overall outcomes. If, during the cleaning process, the responsible staff member believes the State or the County are requesting excessive actions, the Foreman should be contacted.

Corrective Action

All SSO's should be followed up with an analysis as to cause and possible corrective actions. An SSO which is the result of grease or root plug may be placed on the preventative maintenance list for more frequent cleaning. Serious or repetitive plugging problems may require the reconstruction of the sewer lines. An overflow that results from inadequate capacity should be followed by additional system modeling and either flow reduction or capacity increase. If a significant or unusual weather condition caused flooding which was introduced to the sanitary sewer system incorrectly, the corrective action may include working with other agencies to try and rectify the cross connection from the storm sewer to the sanitary sewer or from home drainage systems and sump pumps. Finally, should a problem be such that it is not anticipated to reoccur, no further action may be needed.

Eagle Mountain Spill Plan

This Plan establishes proper clean-up procedures and safety measures to be followed during sewage spill and remediation efforts. These procedures are designed to protect employees, the public, and the environment from the potentially harmful effects associated with sewage spills.

Response Personnel

Operations Planning and Construction (OPC) personnel are primary responders to sewage spills. Responsibilities include determining the cause of, and stopping, a sewage spill, proper cleanup and disposal of spilled sewage and, when necessary, conformance with lock-out tag-out and confined space procedures appropriate for the situation. OPC supervisors shall be responsible for ensuring that response personnel are trained prior to engaging in sewage spill clean-up efforts and that sewage spill clean-up efforts are done in accordance with this Plan.

Health Hazards

Many disease-causing agents are potentially present in raw sewage. These organisms include bacteria, viruses, fungi and parasites. In the U.S., most illnesses associated with raw sewage exposure produce mild to severe flu-like or cold-like symptoms. However, more serious illnesses, such as Hepatitis A, can be contracted through direct contact (mouth, eyes, nose, and ears) with raw sewage. With respect to HIV (AIDS) and HBV (Hepatitis B), the Division of Occupational Safety and Health (DOSH) has stated, in the Bloodborne Pathogen Standard, the following:

There is no evidence to suggest that sewage plant or wastewater workers are at increased risk for hepatitis B infection. HBV and HIV may be present in wastewater, but only in a non-viable state and in very dilute concentrations, which would not be expected to pose a risk to wastewater workers or sewage plant workers.

Since microorganisms can cause disease by entering the body through the mouth, eyes, ears, and nose or through cuts and abrasions to the skin, proper hygiene, and appropriate personal protective equipment (PPE) must be utilized when the potential for direct contact with raw sewage is possible.

Proper Hygiene

Wear waterproof gloves

Wash your hands thoroughly after cleanup work. Use plenty of soap, scrub for at least 30 seconds, and rinse thoroughly.

Do not touch fecal matter or raw sewage with bare hands. Wear waterproof gloves and use an instrument such as tongs or a spade when direct contact with fecal material is necessary.

Do not touch your nose, mouth eyes or ears with your hands unless you have just washed.

Do not smoke, eat, drink, apply lip treatments, or chew gum while cleaning up fecal matter or raw sewage.

Reduce exposure by keeping those who are not properly protected from coming in contact with the material.

Clean everything, including clothes, tools, and footwear, that came in contact with the fecal matter or raw sewage. Use Disinfectants to wash down contaminated surfaces and clean-up equipment.

Clean Up Procedure

1. Evaluate how big the spill is (or may become) and take actions to contain the spill in the smallest area possible. If possible, prevent the spill from entering a storm drain.
2. Secure area against unauthorized entry.
3. Investigate the potential for electrical hazards and de-energize electrical circuits as necessary.
4. Determine if confined space procedures are required and implement as necessary.
5. Follow the “Proper Hygiene” section of this document during any clean-up activities.
6. Put on appropriate PPE

7. Collect and dispose of raw sewage and/or fecal matter into an active sewer system.
8. If spill is inside a building, increase air circulation to reduce odors and mold growth. Open all windows and doors. The use of fans and heaters should also be used to speed the drying process.
9. Following complete clean-up of the contaminated area, wash your hands thoroughly and launder soiled clothes separately. Disinfect “cleanup” mops, brooms, shovels, etc. with disinfectant detergent.

If you have any questions or concerns regarding the clean-up and disposal of fecal matter and/or raw sewage, please contact the Office of Environment, Safety and Risk Management.

Type of Service	Contact Information	Emergency Hotline #
Road Closures:	Sheriff Dispatch # 801-851-4100	911
Spill Containment:	Fire Dispatch # 801-851-4100	911
Power:	Kurry Lewis # 801-789-6681	801-789-5959
Potable Water:	Blake Webb # 801-789-6676	801-789-5959
Storm Drain:	Larry Diamond # 801-404-6630	801-789-5959
DEQ Spill Response:	Dan Griffin # 801-536-4387	
Clean-up Help (TSSD): TSSD:	Alan Robinson # 801-404-9644 TSSD Office # 801-756-5231	801-420-0364

Table 4-1: Eagle Mountain Log of Contact with Other Agencies/People

Location of SSO: _____

Date of SSO: _____

Agency	Phone Number	Contact Made Yes/No	Time	Remarks
Utah DWQ	801-536-4300 or 801-231-1769			
Utah County Health	801-851-7525			
Utah DERR	801-536-4123			
Utah County Sheriff	801-789-6701			
Unified Fire Authority	801-743-7200			
Water Department	801-789-6678			
US EPA Region VIII	Consult with DWQ			

Other Contacts:

Contact Made With	Phone Number	Contact Made Yes/No	Time	Remarks

Section 5 Grease, Oil and Sand Management Program

Purpose

The purpose of this program is to provide for the control and management of grease, oil and sand discharges to the city's collection system. This program will provide a means to reduce interference with the collection system operation and pass through at the treatment plant.

Regulatory Authority

Regulatory authority to implement this program is found in the Code of Federal Regulations in 40 CFR 403, General Pretreatment Regulations. State authority for the program is given in the Utah Administrative Code R317-8-8, Pretreatment. Eagle Mountain is in the process of adopting a Pretreatment Program. However, city code contains language regulating the preliminary treatment of wastewater. This is found in Chapter 13.20 of the city code. Pertinent sections are included with this program.

Program Implementation

This program is implemented in such a manner as to minimize the impact on businesses which may be affected by this program. In all cases Eagle Mountain will maintain a uniform decision making process. Eagle Mountain will allow for appeals of program requirements in accordance with the appeal process in the Pretreatment Program.

The following steps detail the procedure that Eagle Mountain personnel will follow in implementing this program.

Evaluation:

Eagle Mountain staff will follow Pretreatment Program Section 3-A to identify an industrial user (IU) to determine if grease, oil, or sand management is required.

Implementation:

After identifying an IU, Eagle Mountain staff will follow the User Classification Program, found in Pretreatment Program Section 3-B, to determine and IU's class.

By following the steps discussed above, Eagle Mountain hopes to maintain a collection system free from excessive backups and a treatment plant in compliance with UPDES discharge conditions.

Eagle Mountain City Code

13.20.520 Grease, etc., interceptors may be required – Specifications.

Grease, oil, and sand treatment facilities shall be provided when, in the opinion of the director, they are necessary for the proper disposal of liquid wastes containing grease in excessive amounts, or any flammable wastes, sands, and other harmful ingredients; except that such facilities shall not be required for private living quarters or dwelling units. All required facilities shall be of a type and capacity approved by the director, and shall be located as to be readily and easily accessible for cleaning and inspection.

Grease and oil traps and treatment facilities shall be constructed of impervious materials capable of withstanding abrupt and extreme changes in temperature. They shall be of substantial construction, or watertight, and equipped with easily removable covers which when bolted in place shall be gastight and watertight. [Ord. O-01-2004 § 1 (Exh. A § 4.53); Ord. 002 § 1 (Exh. A § 4.53)].

13.20.530 Maintenance of grease, etc., treatment facilities.

Where installed, all grease, oil and sand treatment facilities shall be maintained by the owner, at his expense, in continuously efficient operation at all times. [Ord. O-01-2004 § 1 (Exh. A § 4.54); Ord. 002 § 1 (Exh. A § 4.54)].

13.20.540 Preliminary treatment facilities may be required – Specifications.

The admission into the public sewers of any waters or wastes (A) having a five-day biochemical oxygen demand greater than 300 parts per million by weight, or (B) containing more than 350 parts per million by weight of suspended solids, or (C) containing any quantity of substances having the characteristics prohibited herein, or (D) exceeding the average daily sewage flow of the city, shall be subject to the review and approval of the director. Where necessary, in the opinion of the director, the owner shall provide, at his expense, such preliminary treatment as may be necessary to (1) reduce the biochemical oxygen demand to 300 parts per million and the suspended solids to 350 parts per million by weight, or (2) reduce objectionable characteristics or constituents to within the maximum limits allowable, or (3) control the quantities and rates of discharge of such waters or wastes. Plans, specifications, and any other pertinent information relating to proposed preliminary treatment facilities shall be submitted for the approval of the director and of the Water Quality Board of the state of Utah, and no construction of such facilities shall be commenced until said approvals are obtained in writing. [Ord. O-01-2004 § 1 (Exh. A § 4.55); Ord. 002 § 1 (Exh. A § 4.55)].

13.20.550 Maintenance of preliminary treatment facilities.

Where preliminary treatment facilities are provided for any waters or wastes, they shall be maintained continuously in satisfactory and effective operation by the owner at his expense. [Ord. O-01-2004 § 1 (Exh. A § 4.56); Ord. 002 § 1 (Exh. A § 4.56)].

13.20.560 Control manhole for sampling and measurement of wastes.

When required by the director, the owner of any property served by a building sewer carrying industrial wastes shall install a suitable control manhole in the building sewer to facilitate observance, sampling, and measurement of the wastes. Such manhole, when required, shall be accessible and safely located, and shall be constructed in accordance with plans approved by the director. The manhole shall be installed by the owner at the owner's expense, and shall be maintained by him so as to be safe and accessible at all times. [Ord. O-01-2004 § 1 (Exh. A § 4.57); Ord. 002 § 1 (Exh. A § 4.57)].

13.20.570 Standards for measurements, tests and analyses.

All measurements, tests, and analyses of the characteristics of waters and wastes to which reference is made herein shall be determined in accordance with "Standard Methods for the Examination of Water and Wastewater" and shall be determined at the control manhole required by the director, or on suitable samples taken at said manhole and tested, provided by the city. In the event that no special manhole has been required, the control manhole shall be considered to be the nearest downstream manhole in the public sewer to the point at which the building sewer is connected. [Ord. O-01-2004 § 1 (Exh. A § 4.58); Ord. 002 § 1 (Exh. A § 4.58)].

13.20.580 Acceptance of industrial waste under special agreement.

No statement contained in this chapter shall be construed as preventing any special agreement or arrangement between the city and any industrial concern whereby an industrial waste of unusual strength or character may be accepted by the city for treatment, subject to payment therefor by the industrial concern. [Ord. O-01-2004 § 1 (Exh. A § 4.59); Ord. 002 § 1 (Exh. A § 4.59)].

SECTION 6 SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN

BACKGROUND

One of the keys to preventing sanitary sewer overflows is to evaluate system capacity and to monitor flows throughout the system in order to ensure that capacities are not exceeded. Eagle Mountain's infrastructure has been planned to accommodate the anticipated growth according to the City's zoning. If the zoning is modified or growth patterns change this system evaluation will need to be updated.

The following elements are all part of Eagle Mountain's SECAP program.

1. Initial Capacity Evaluation
2. Flow Monitoring
3. Surge Flow Analysis
4. Re-evaluation Modeling and Analysis
5. Flow Reduction Evaluation and Implementation
6. Capacity Increase Evaluation and Implementation

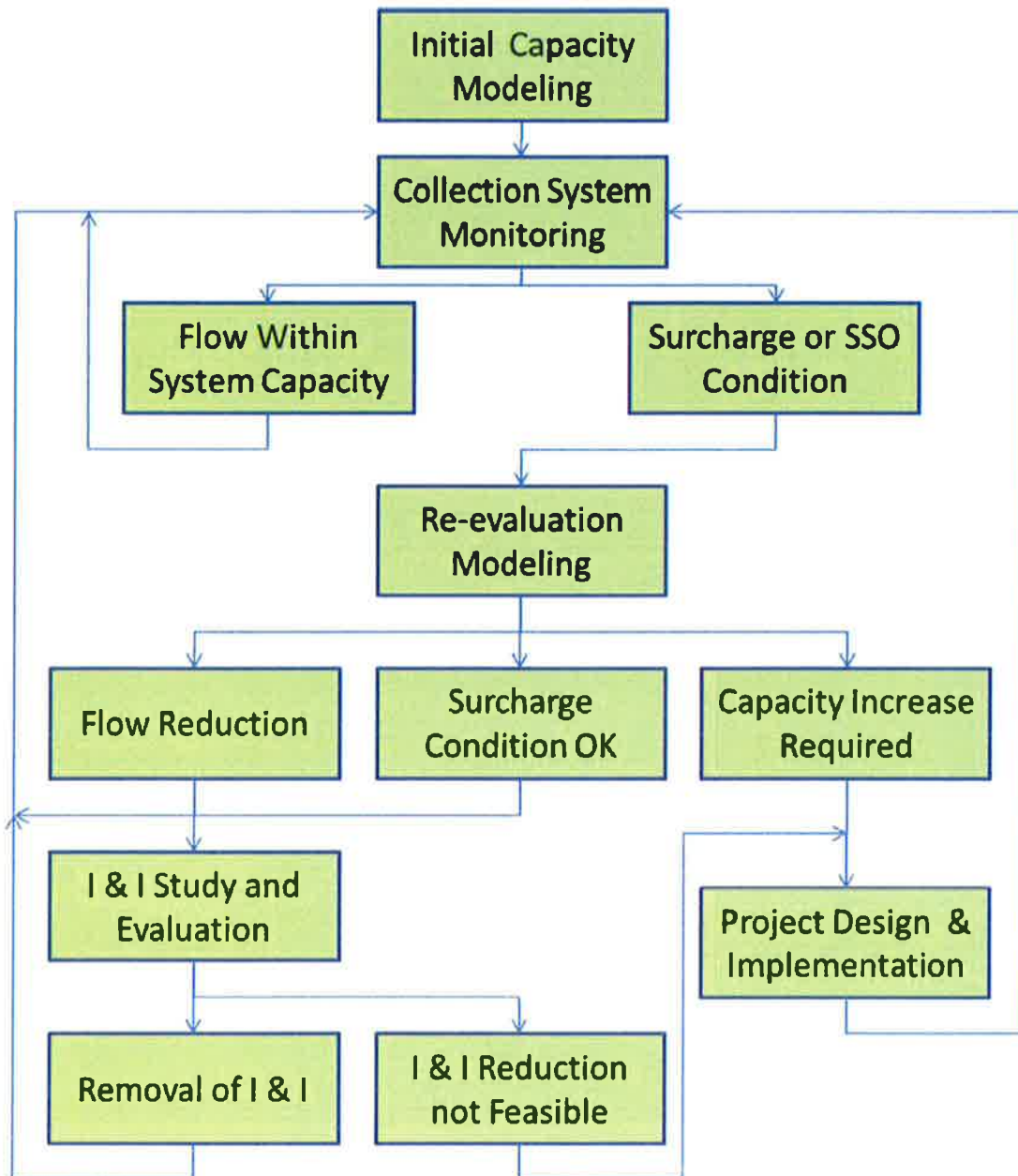
The actual implementation process associated with each of the elements above is shown in Figure 6-1 on the following page. This chart details the SECAP procedure.

INITIAL CAPACITY EVALUATION

JWO Engineering, PLLC evaluated the capacity of the main sewer lines in Eagle Mountain using information provided in the City's geographic information system (GIS). A flow capacity analysis spreadsheet was developed using the pipe diameter and slope information. The most critical sections (least slope) for each pipe size were evaluated to determine the number of equivalent residential units (ERU) that the pipe can serve without being over the design capacity. Design capacity was determined to be reached when flow in the pipe is 2/3 of the pipe diameter. ERUs were based on a flow of 400 GPD. Based on the evaluation, the 12" pipe serving Ranches Parkway north of Pony Express parkway is the closest to being at capacity with a capability to serve 2953 ERUs and an estimated 1000 connections in this area. GIS information was not complete so the number of connections could not be precisely determined but the initial evaluation indicates that there is ample capacity for the current level of buildout in the system. In addition to the capacity evaluation of the trunk lines, collector lines were evaluated to a point where less than 400 ERUs are upstream of that point in the system. The 400 ERU point was chosen based on the minimum slope requirements of the State of Utah. An 8-inch pipe constructed on minimum slope will carry the flow from 400 ERUs based on 3.2 persons per dwelling unit, 75 gpcd and a peaking factor of 4. Using the GIS information

available, no collector line areas were identified as having with capacity issues. The ERU flows are based on typical Utah information and assumes the peaking factor will account for a reasonable amount of inflow and infiltration. If an area is known to have, or flow metering identifies, a significant amount of inflow and infiltration, additional evaluation will be needed. In these areas the capacity of an 8-inch pipe system may be significantly reduced below 400 RE.

Figure 6-1: SECAP Procedure



Since Eagle Mountain is not a large city and the evaluation indicated that no pipes are nearing design limits, time of concentration for the sewer flows was ignored. If flow monitoring indicates that pipes are nearing capacity, the length of time for various contributing flows to reach critical points in the collection system should be evaluated.

FLOW MONITORING

Visual inspections of flow conditions are conducted by TSSD as part of the maintenance contract. Flow metering is only done on the influent to the treatment facility. When flows increase in the future, Eagle Mountain may develop a program of monitoring flow rates with a portable flow meter.

SURCHARGE FLOW ANALYSIS

If any collection subsystem is identified as having any of the following problems the system will be evaluated to determine future action. These problems are:

1. Sanitary Sewer Overflow to the Environment
2. Sanitary Sewer Break Remaining in the Trench
3. Basement Backup
4. Observed Subsystem Surcharging.

The flow evaluation may result in multiple conclusions, some of which may require further action. Possible conclusions and their further action are listed below. This list is not inclusive nor does it require the specific action detailed. These are given as possible examples and will be used by the wastewater foreman to determine correct future action.

Flow Reduction Evaluation

Should excessive flows be identified during the surcharge analysis, the solution may be to proceed with an inflow and infiltration study with the ultimate goal of reducing flows. These flow reductions may be achieved by reconstruction of specific areas, internal spot repairs, removing illegal storm water or sump pump connections from homes or storm water systems, and system grouting. Tools used in flow reduction may include extensive in line camera inspection, smoke testing, dye testing, and increased inspection or flow monitoring.

Foreign Objects or Obstructions

There are multiple foreign objects which may be found in sewers. These may include objects knocked into sewers during construction, illegally placed in sewer manholes, roots, grease and soaps, bellies in piping systems, etc. Each of these problems should be found during the backup investigation and a plan

developed to insure the problem does not reoccur. Types of action may include increased cleaning frequency, spot repairs, greater pretreatment activity, lining of pipes, and other corrective actions which resolve the problem.

Allowable Surcharging

Some piping systems may be able to accept surcharges without creating problems. Such systems may be deep and surcharging occurs below the level of basements or manhole rims, or they may be in areas where there are no connections. In such cases the resolution of the observed surcharge may just be additional monitoring.

Revised System Modeling

Where piping system problems cannot be resolved in a less expensive way, the system may be further modeled to determine upgrade needs. Modeling should include known flow information and future projections. Since the system has been shown to have problems, further modeling should be more conservative in flow projections. Revised modeling should follow the guides given next.

RE-EVALUATION MODELING AND ANALYSIS

When collector line needs demonstrate unresolvable problems by less costly means, the subsystem should be re-modeled and required action determined. Revised modeling may show that flow reduction may still be viable or it may show that the system can allow current surcharge conditions. Most likely, however, the modeling will normally form the basis for construction to enlarge the subsystem capacity. Modeling should be done either by

1. Eagle Mountain staff using commercially available software
2. Eagle Mountain staff using spreadsheet models
3. Engineering firms using available software or spreadsheets.

It is important to insure the modeling is comprehensive and includes all the potential flow sources. While the current area zoning and land use planning should be used in the model development, care should be taken to discuss possible changes with appropriate officials. Where possible zoning changes appear likely, the model should be re-run with the revised zoning alternatives. Once a resolution has been selected, the resulting project should be placed on the capital improvement plan (CIP).

CAPACITY INCREASE EVALUATION AND IMPLEMENTATION

The capacity evaluation should be expedited based on the impact of the problem on the environment and the possible repeat of the overflow/backup/surcharging. Details on prioritization are given in the next section.

Systems requiring additional capacity should be engineered for expansion by qualified staff or engineering consultants. Project design should be based on acceptable engineering standards and should comply with State of Utah regulations found in R317-3. Easements should be obtained, where needed and the design should include an analysis of other utilities in the vicinity. Design review should be done by the applicable regulatory agency, as appropriate. A design report should be prepared for each project.

Where appropriate, the subsystem modeling may be substituted for the design report.

Finalized projects should be placed on the Capital Improvement Plan (CIP).

System Improvement Prioritization

The priority for improvement should follow the following general guidelines:

High Priority Projects

When there is significant potential for sanitary sewer overflows, or frequent basement backups, the improvement should be considered a high priority and any available budget should be allocated to the project.

Medium Priority Projects

Where the problem is infrequent and the possibility exists that it may not repeat in the near future, the priority for correction is medium. Medium priority projects may be delayed until appropriate budget is available or the priority is adjusted to high priority. Should an SSO or basement backup repeat in the same area, the priority should be immediately revised.

Low Priority Projects

If the observed problem is infrequent, there is possibility that it may not repeat in the near future and the possibility that increased flow in the subsystem is low, the correct priority is low. Low priority projects will be placed in the budget process and evaluated against other needs. These projects will eventually be completed, but the work is not prioritized above plant and equipment needs.

Capital Improvement Plan

The capital improvement planning is part of the Eagle Mountain's budgeting process to insure sufficient revenue to address identified weaknesses in the sanitary sewer system. Items which have been identified as needing structural rehabilitation are placed on the CIP list and the cost for each estimated. Sources of funding should be identified for all high priority projects so that SSO's or other failures do not re-occur. Forecasts of available funding for medium and low priority projects should be made to facilitate future revenue needs.

Table 6-1: Pipe Capacity Analysis

Eagle Mountain City SSMP

JWO Engineering, PLLC

Service area	Pipe Diameter	Pipe % Full (depth)		Controlling Pipe		Mannings N	Q (cfs)	V (ft/s)	Q (gpm)	ERU Flow (gpd)	Pipe Capacity
		Depth (in)	0.67	Segment	Slope					(#ERU's handled)	
N Outfall	30	20.1	0.0005	0.012	7.84	0.012	7.84	2.24	3520	400	12671
N Outfall	24	16.08	0.0066	0.012	15.72	0.012	15.72	7.02	7053		25391
N Outfall	21	14.07	0.0045	0.012	9.09	0.012	9.09	5.31	4079		14685
N Outfall	15	10.05	0.0008	0.012	1.56	0.012	1.56	1.79	701		2524
N Outfall	12	8.04	0.0036	0.012	1.83	0.012	1.83	3.27	820		2953
N Outfall	10	6.7	0.0182	0.012	2.53	0.012	2.53	6.51	1134		4083
S Outfall	18	12.06	0.0142	0.012	10.70	0.012	10.70	8.50	4804		17293
S Outfall	24	16.08	0.0106	0.012	19.92	0.012	19.92	8.90	8938		32178

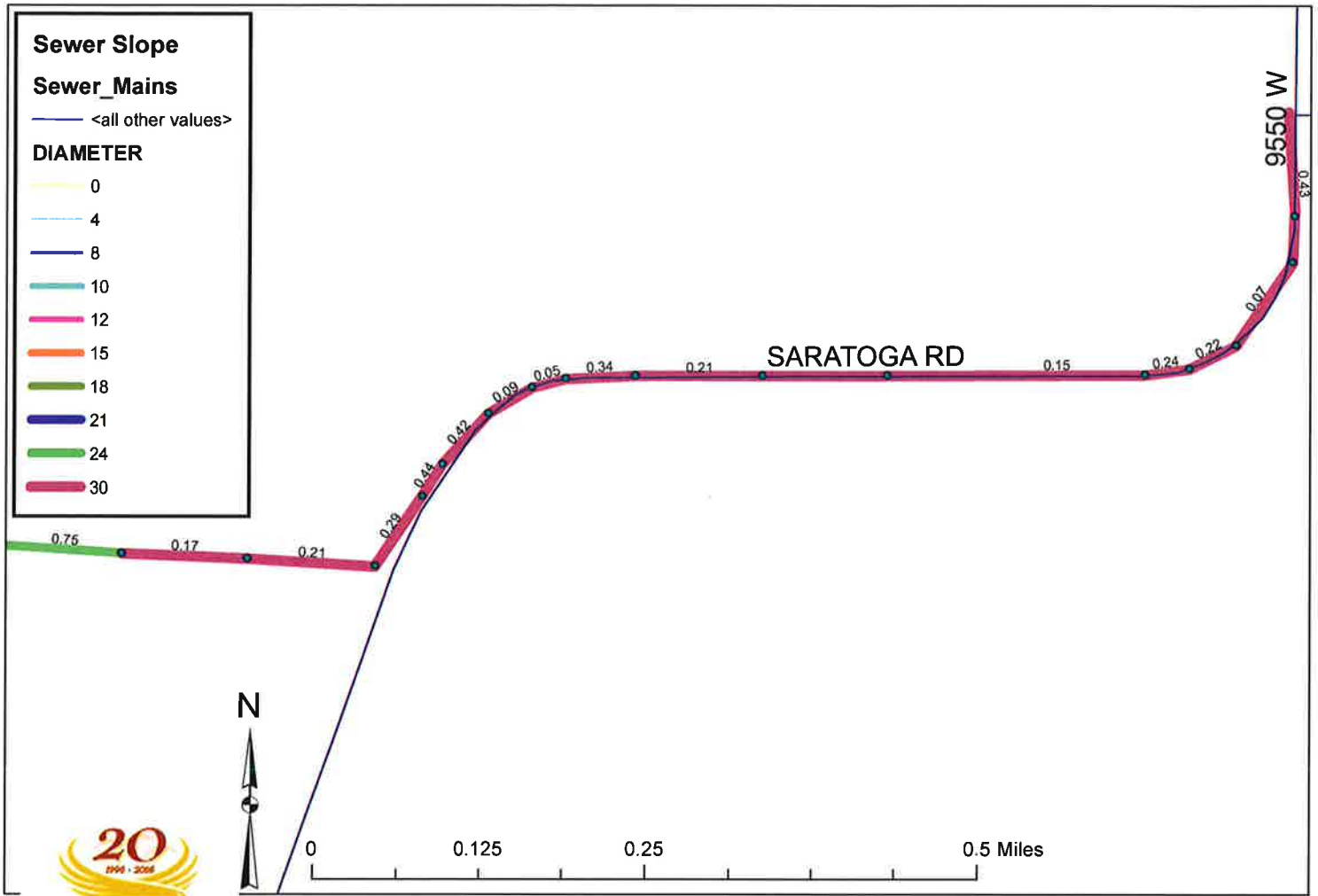


Figure 6-2: N. Outfall 30" Pipe

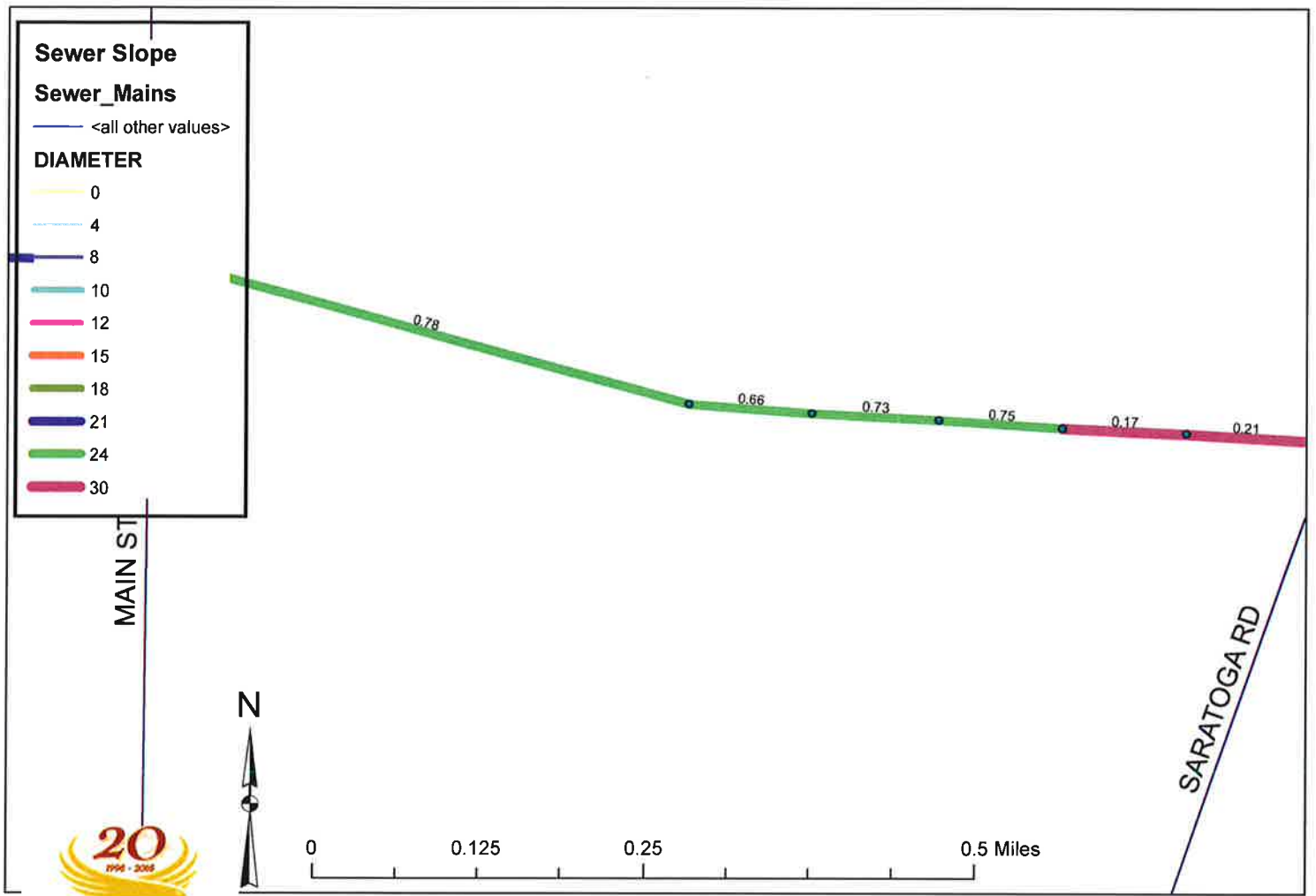


Figure 6-3: N. Outfall 24" Pipe

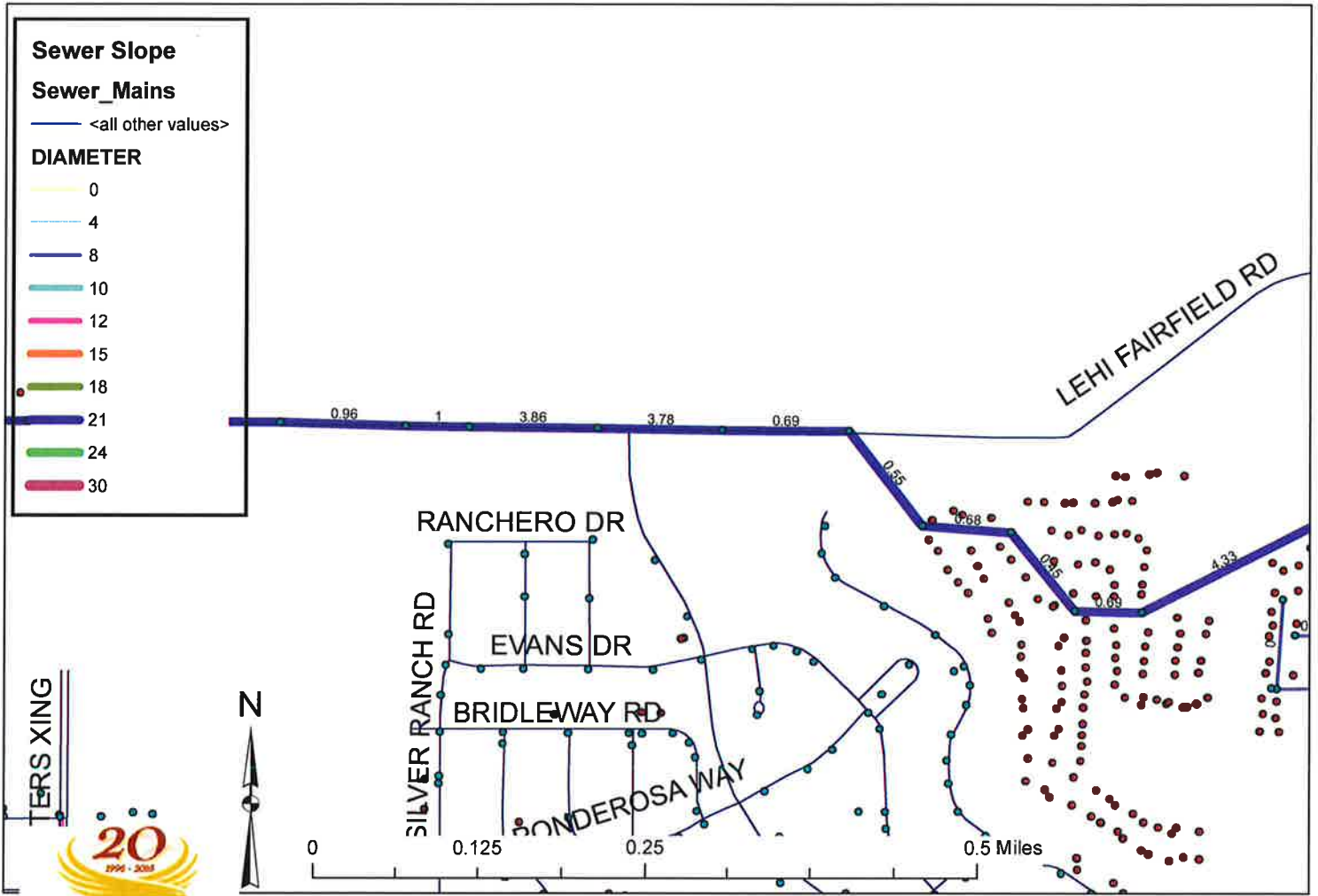


Figure 6-4: N. Outfall 21" Pipe

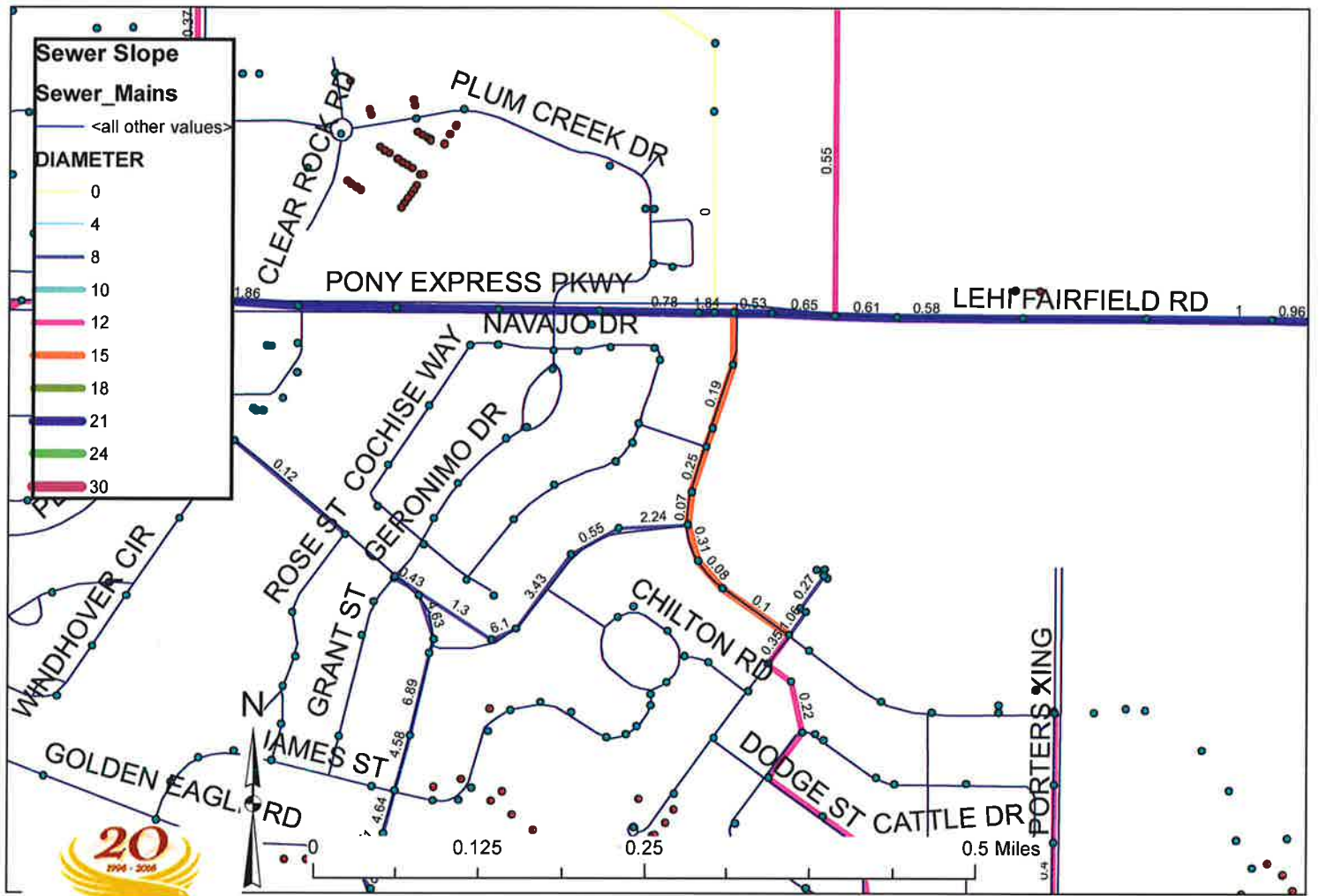


Figure 6-5: N. Outfall 15" Pipe



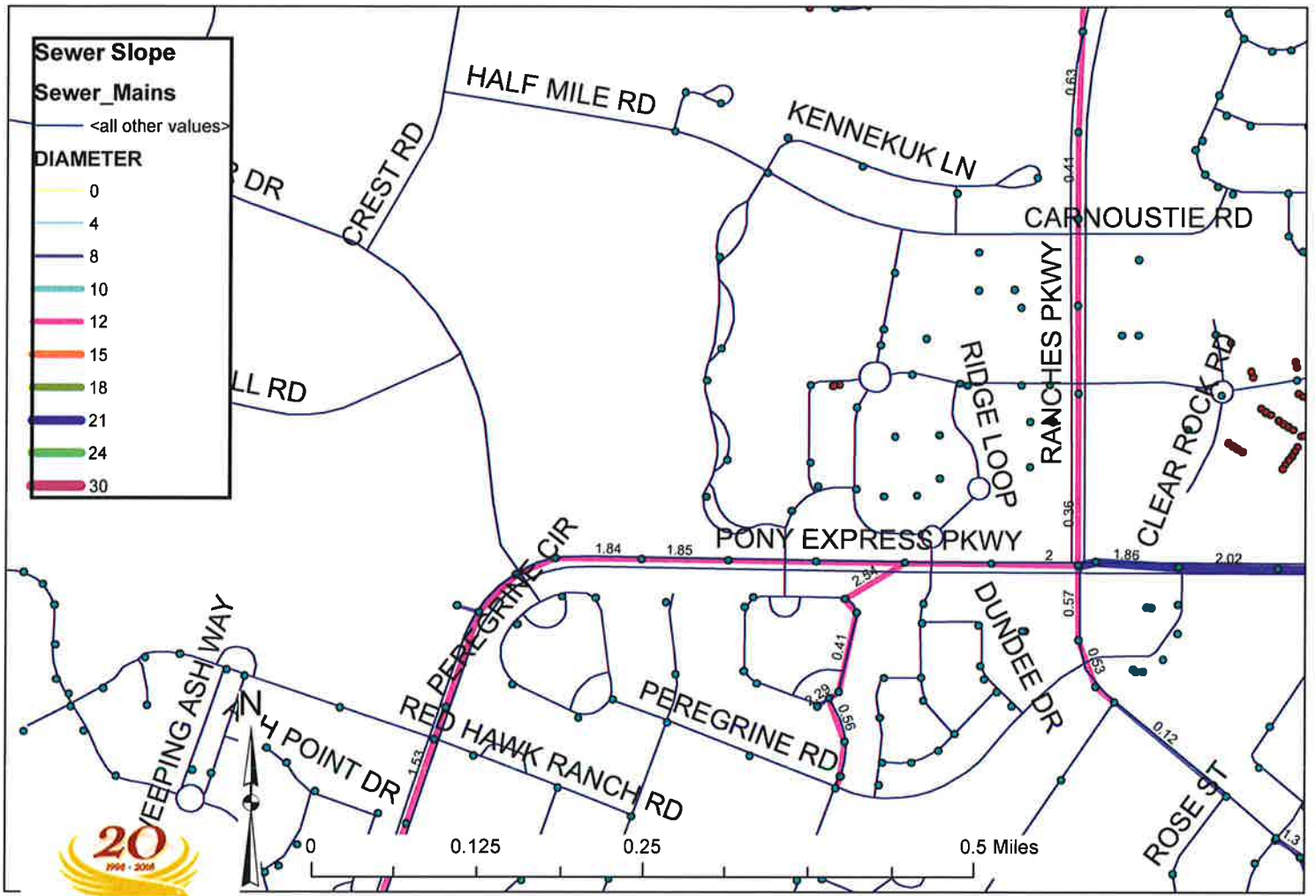


Figure 6-6: N. Outfall 12" Pipe

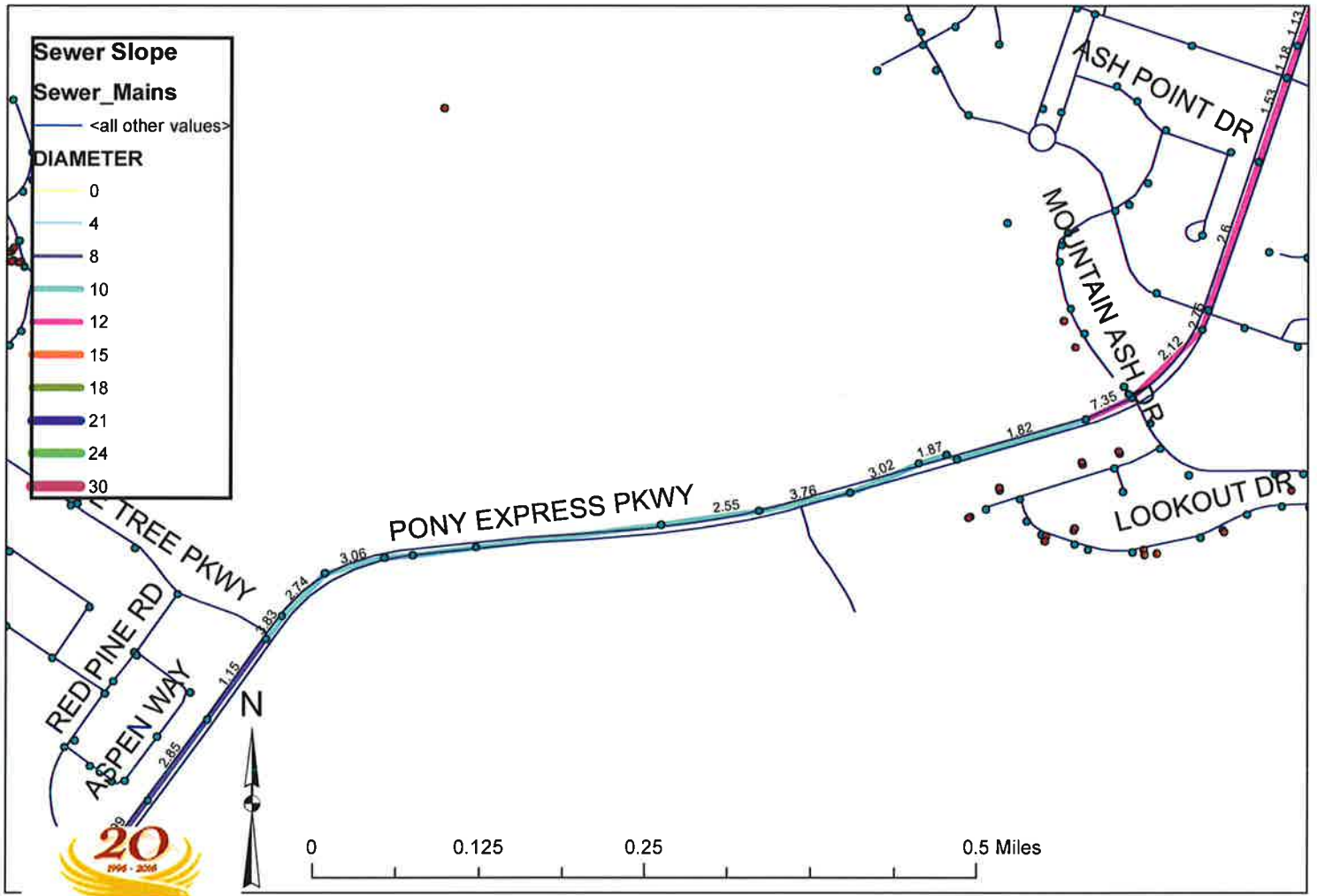


Figure 6-7: N. Outfall 10" Pipe



Figure 6-8: South Outfall Pipes

Section 7 SSMP Monitoring and Measurement Plan

The purpose of this plan is to provide appropriate monitoring and measurement of the effectiveness of the SSMP in its entirety.

Records Maintenance

Eagle Mountain intends to maintain appropriate records on operations and maintenance of the sanitary sewer system to validate compliance with this SSMP. However, failure to meet standards set by State DWQ or other regulatory agency during an inspection does not constitute a violation of the SSMP. Rather, deficiencies identified during inspections should be viewed as an opportunity for improvement.

Operations Records

Eagle Mountain has contracted with the Timpanogos Special Service District (TSSD) for cleaning, repairs and maintenance of its sewer lines. Eagle Mountain's Wastewater Foreman maintains annual reports from TSSD regarding the work performed. These reports are maintained in a central location.

Performance Measurement (Internal Audit)

Periodically, but not less than annually, Eagle Mountain should assess and audit the effectiveness of the elements of this SSMP. All elements should be reviewed for effectiveness as well as all records should be reviewed for completeness. An internal audit report should be prepared preferably annually but no less than once every five years which comments on the following:

- Success of the operations and maintenance program
- Success of other SSMP elements
- Adequacy of the SECAP evaluations
- Discussion of SSO's and the effectiveness of the response to the event including corrective action
- Review of Defect reports and adequacy of response to eliminate such defects
- Opportunities for improvement in the SSMP or in SSO response and remediation

The annual audit report need not be extensive or long. It should, however be sufficient to document compliance with the standards set in the SSMP. The audit reports should be maintained in accordance with Eagle Mountain's records retention schedule.

SSMP Updates

When a plan deficiency is identified though an audit, inspection or plan review, and the deficiency requires an SSMP update, the plan may be updated at the discretion of the

Wastewater Foreman. SSMP updates should be recorded in a revision index maintained by said Foreman.

SSO Evaluation and Analysis

At least annually in the internal audit and more frequently as needed, Eagle Mountain will evaluate SSO trends based on frequency, location and volume. Trend evaluation will be empirical unless a large number occur sufficient to make a statistical analysis viable. If a trend is identified, a corrective action may be appropriate.

Public Communication and Outreach

Eagle Mountain will reach out to the public about the development, implementation and performance of the SSMP. This communication may be accomplished by any of the following methods:

- Public hearings
- Public meetings
- Newsletters
- Direct mailing
- Leaflets
- Other effective methods

Eagle Mountain will accept comments, either written or verbal and will review such comments for applicability. Public interest may be difficult to generate, but should be solicited.

Section 8 Sewer System Mapping Program

The City of Eagle Mountain maps the location of sewer lines using ArcGIS. These electronic records are maintained and updated by the Engineering Department.